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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,660	02/13/2002	Gene R. Hawkins	DP-306261	6085

7590 12/11/2003

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EXAMINER	
JULES, FRANTZ F	

ART UNIT	PAPER NUMBER
3617	

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/074,660	[redacted]AWKINS ET AL.
	Examiner	Art Unit
	Frantz F. Jules	3617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Wagner (US 5,997,103).

Claims 1, and 3

Wagner teaches all the limitations of claims 1, and 3 by showing in figs. 1-3 a vehicle wheel bearing comprising a vehicle-wheel-bearing non rototable section (24), a vehicle-wheel-bearing rotatable section (12) rotatably attached to the non-rotatable section, wherein the rotatable section has a hole (A) with internal thread, a wheel stud (42) including first and second portions (C, D), wherein the first end portion (C) has external threads rigidly threadably attached to the internal threads of the hole of the rotatable section as shown in figs. 1, 3, and wherein the second end portion (D) has a wheel-nut-engaging second external threads.

The rotatable section (12) includes a flange (E) having an inboard and an outboard side, wherein the flange has a through hole (A) wherein the first portion (C) of the wheel stud has a bolt head which is disposed inboard side of the inboard side of the flange as required by claim 3.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2, 4-6, 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wagner (5,997,103) in view of Wierzchon (US 6,125,526).

Claims 2, 4-6, 8-13

Wagner teaches all the limitations of claims 2, 4-6, 8-13 by showing in figs. 1-3 a vehicle wheel bearing comprising a vehicle-wheel-bearing non rototable section (24), a vehicle-wheel-bearing rotatable section (12) rotatably attached to the non-rotatable section, wherein the rotatable section has a hole (A) with internal thread, a wheel stud (42) including first and second portions (C, D), wherein the first end portion (C) has external threads rigidly threadably attached to the internal threads of the hole of the rotatable section as shown in figs. 1, 3, and wherein the second end portion (D) has a wheel-nut-engaging second external threads.

The rotatable section (12) is a wheel-bearing spindle, the non-rotatable section (22) is a wheel bearing hub as required by claims 2, 6.

The rotatable section (12) includes a flange (E) having an inboard and an outboard side, wherein the flange has a through hole (A), wherein the first portion of the wheel stud has a bolt head which is disposed inboard side of the inboard side of the flange.

Wagner disclose all of the features as listed above but does not disclose a vehicle wheel bearing assembly having a rotatable spindle including a wheel stud having first

left-hand external threads on a first portion attached to the hole of the spindle and second right-hand external threads on a smaller diameter of the stud. The general concept of providing a member with internal thread in a hole of a flange member to receive a stud having first left-hand external threads on a first portion which are rigidly threadably attached to the internal threads of the hole and second right-hand threads on a smaller diameter is well known in the art as illustrated by Wierzchon which discloses a flange member (20) with internal threads (26) in a hole to receive a stud (32) having first left-hand external threads (28) on a first portion which are rigidly threadably attached to the internal threads of the hole and second right-hand threads (42) on a smaller diameter, see fig. 4, col. 1, lines 64-67, col. 2, lines 1-5, col. 2, lines 36-41, column, 3, lines 8-15. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wagner to include the use of a rotatable spindle including a wheel stud having first left-hand external threads on a first portion attached to the hole of the spindle and second right-hand external threads on a smaller diameter of the stud in his advantageous vehicle wheel bearing as taught by Wierzchon in order to take advantage of the deformation of a portion of a threaded on the first member to retain the stud in the spindle by compressive force thereby defining a unitary structure.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kessen el al (US 6,036,370) in view of Wierzchon (US 6,125,526).

Claims 7

Kenssen et al teach all the limitations of claim 7 by showing in fig. 1 a vehicle wheel bearing comprising a vehicle –wheel-bearing non rototable section (22), a vehicle-

wheel-bearing rotatable section (12) rotatably attached to the non-rotatable section, wherein the rotatable section has a hole (21), a wheel stud (20) including first and second portions, wherein the first end portion has external thread, and wherein the second end portion has a wheel nut. The rotatable section (12) is a wheel-bearing spindle.

The rotatable section (12) includes a flange (18) having an inboard and an outboard side (18B, 18A), wherein the flange has a through hole (21), wherein the first portion of the wheel stud has a bolt head (20A) which is disposed inboard side of the inboard side (18B) of the flange.

Kenssen et al disclose all of the features as listed above but does not disclose a vehicle wheel bearing assembly having a rotatable spindle with internal threads including a wheel stud having first left-hand external threads on larger diameter which is rigidly threadably attached to the internal threads of a thru hole and second right-hand threads on a smaller diameter. The general concept of providing a member with internal thread to receive a stud having first left-hand external threads on larger diameter which is rigidly threadably attached to the internal threads of a thru hole and second right-hand threads on a smaller diameter is well known in the art as illustrated by Wierzchon which discloses a member (20) with internal threads (26) to receive a stud (32) having first left-hand external threads (28) on larger diameter which is rigidly threadably attached to the internal threads of a thru hole and second right-hand threads (42) on a smaller diameter, see fig. 4, col. 2, lines 36-41, column, 3, lines 8-15. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kessen et

al to include the use of having a rotatable spindle with internal threads including a wheel stud having first left-hand external threads on larger diameter which is rigidly threadably attached to the internal threads of a thru hole and second right-hand threads on a smaller diameter in his advantageous vehicle wheel bearing as taught by Wierzchon in order to take advantage of the deformation of a portion of a threaded on the first member to retain the stud in the spindle by compressive force thereby defining a unitary structure as threaded connection is more cost effective than spline fitting or press fitting connection due to greater manufacturing tolerances that is required.

6. Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wierzchon in view of Wagner (US 5,997,103)

Claims 14-20

Wierzchon discloses a vehicle stud (32) comprising a first portion (46) having rigidly-bearing-engaging first external threads (28) and including a second portion (42) having nut-engaging second external threads, wherein the first portion (46) has a first diameter at the first external threads, wherein the second portion has a second diameter at the second external threads, wherein the first diameter is larger than the second diameter as seen in fig. 4, wherein the first portion has a bolt head (36), wherein the first external threads (28) are disposed between the bolt head (36) and the second external threads (42), wherein the bolt head (36) has a portion having a diameter larger than the first diameter (of portion 46), wherein the first external threads (28) are left handed threads as disclosed in column 3, lines 8-15, and wherein the second external threads are right-handed external threads.

Wierzchon teaches all of the features as listed above but does not disclose a wheel stud used in a vehicle wheel in threaded engagement thereof. The general concept of providing a vehicle wheel with a wheel stud is well known in the art as illustrated by Wagner, see fig.1. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wierzchon to include the use of a wheel stud used in a vehicle wheel including a stud body that engages the vehicle wheel in threaded engagement in his advantageous vehicle stud as taught by Wagner in order to take advantage of the threaded connection over spline fitting or press fitting connection to facilitate maintenance of the stud in a wheel application.

Response to Arguments

7. Applicant's arguments filed 10/20/03 have been fully considered but they are moot in view of the new grounds of rejection.

A. Summary of applicant's argument

In the amendment, applicant traversed the rejection of the newly amended claims 1-20 for the following reasons:

1. The reference cited in the 103 rejection, Wierzchon, fails to disclose a rigidly threadably attachment of the first external threads of the stud to the internal thread of the hole of the wheel bearing as Wierzchon describes a method which loosely retains a stud to a first member while allowing the stud to pivot.

2. The motivation to combine the references is not found in either Kessen et al or Wierzchon.

B. Response to applicant's argument

1. Applicant's argument regarding a lack of a rigidly threadably attached connection of the first external treads of the stud to the internal thread of the hole of the wheel bearing is not understood since Wierzchon disclose a vehicle wheel stud and flange apparatus in which the first external thread of the wheel stud is rigidly threadably attached to the thread of the internal thread of the hole of flange member 20 as shown in the figures. Applicant's argument that "Wierzchon describes a method which loosely retains a stud to a first member while allowing the stud to pivot. ... The method of Wierzchon pivotally threadably attaches the stud and does not rigidly threadbly attach the stud as required by applicants' claim" is weak and is not supported by the end product of the Wierzchon which discloses a rigidly threadably attachment of the first external thread of the stud to the internal thread of the hole of flange member yielding a rigidly threadaby attachment with the internal thread of the hole thereby producing a compressive force on flange member 20. Applicant is relying on the fact that a method of fastening the first member to a second member is described to set forth the argument that the stud is loosely retained. Nowhere in the figures of Wierzchon that a loose connection between the first external threads of the stud and the internal threads of the hole of the flange 20 is shown. It is well known that a threaded connection is typically a rigid connection which allow forward advancement of a bolt using force. Furthermore, this argument is moot in view of the disclosure of Wagner patent.

2. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention

where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one of ordinary skill in the art would have been motivated to incorporate the teaching of "a vehicle wheel bearing assembly having a rotatable spindle with internal threads in a hole as well as a vehicle stud including a first portion having bearing-engaging first external threads and including a second portion having nut-engaging second external threads, wherein the first portion has a first diameter at the first external threads, wherein the second portion has a second diameter at the second external threads, wherein the first diameter is larger than the second diameter, wherein the first portion has a bolt head, wherein the first external threads are disposed between the bolt head and the second external threads, wherein the bolt head has a portion having a diameter larger than the first diameter, wherein the first external threads are left handed threads" as taught by Wierzchon into Kessen et al in order to achieve, among others, the benefit of reducing stress in the spindle as well as manufacturing time and cost of the assembly.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frantz F. Jules whose telephone number is (703) 308-8780. The examiner can normally be reached on Monday-Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph S. Morano can be reached on (703) 308-0230. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Frantz F. Jules
Examiner
Art Unit 3617

FFJ

December 5, 2003

FRANTZ F. JULES
PATENT EXAMINER